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A Case Series Showing Mimics of Hydatid Cyst and Other Clinicopathological Implications

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Abstract
Introduction: *Hydatid cyst is a chronic parasitic infection in humans caused by echinoccocus species. In India highest prevalence is seen in regions like Gujarat, Andhra Pradesh and Tamil Nadu. Most common sites for hydatid cyst are liver followed by lung while other sites include muscles, bones, kidney, brain, pancreas and ovaries.*
Cases and Discussion: *The cases discussed here includes hydatid cyst in liver, lung, ovary and muscle.In one case hydatid cyst of liver was confused with hepatic adenoma .In another case , tuberculosis of lung was suspected. In yet another female patient ovarian cystic disease was provisionally diagnosed before operating patient. Choledocholiathaisis was also interpreted in one patient on the basis of clinical, laboratory investigation and radiologically. Also in one case involving soft tissue lipoma was presumed. In all these cases wet preparations and histopathological examination confirmed diagnosis of hydatid cyst disease. Albendazole is the drug of choice. Typical radiological findings are helpful in the diagnosis of the disease. Surgical removal of hydatid cysts remains the preferred method of treatment.*
Conclusion: *As no organ is exception to hydatid cyst disease it should be kept in mind along with other differential diagnosis while treating cystic diseases to keep away this major public health problem.*
Keywords: *Liver, Hydatid Cyst, Ovary.*

Introduction

Hydatid cyst is a chronic parasitic infection in humans caused by echinoccocus species[1]. It is an important public health problem mainly seen in countries of middle east and other parts of world like India, Africa, South America, Turkey, Southern Europe[7]. In India highest prevalence is seen in regions of cattle rearing areas like Andhra Pradesh, Gujarat, Andhra Pradesh and Tamil Nadu[2]. It is caused by echinoccocus granulosus and echinoccocus multilocularis which are the two main important species of echinocccus[6]. The definitive hosts of the parasite are dogs whereas intermediate hosts are sheep and other rudiments. Humans can become infected by the microorganism by consuming food or water infected by its eggs, or by contacting infected dog faeces with results being growth of cysts which are infected in human body[1,3]. Most common sites for hydatid cyst are liver followed by lung while other sites

include muscles, bones, kidney, brain, pancreas and ovaries[1,3,7].

We present here case series of 5 cases of hydatid cyst depicting clinicopathological correlation and epidemiology.

Case Discussion

Case 1

A 56 year female complained of right upper abdomen pain since 3 years with occasional episodes of vomiting. On examination patient was febrile with tenderness on right hypochondrium of abdomen. Hematological, CVS and respiratory examinations were found to be unremarkable however deranged liver function tests were evident. On ultrasonography moderate hepatomegaly of 18cm with solitary cyst with was seen. CECT was performed and a provisional diagnosis of benign hepatic adenoma or simple cyst was suggested on the basis of physical examination, laboratory tests, radiographic examinations. USG guided biopsy was performed and on histopathology diagnosis of hydatid cyst disease was given. HE stains revealed cyst wall comprising of germinal layer, laminated membrane and fibrous capsule with protoscolices of E.Granulosis. Preoperative and Postoperative albendazole was started.

Case 2

A 68 year male complained of dyspnea with constant coughing which was dry in nature. He was referred to pulmonary medicine department suspecting tuberculosis infection. His respiratory examinations revealed crepitaions on left lung involving lower lobe. Chest xray revealed solitary cystic lesion with mild pleural effusion. After ruling out tuberculosis by cytological examination of pleural fluid and Zeihl Neelsen staining CT was advised. On CT 110x93x87 mm3 sized large encapsulated cyst in left lower hemithorax with possibility of benign cystic lesion. A provisional diagnosis of hydatid cyst was now considered however blood eosinophilia was not found. Cystotomy was performed which showed multiple cystic structures with largest measuring 13x 10cm2. Wet preparations showed hooklets of echinoccocus granulosis. HE stains showed germinal layer, laminated layer and fibrous capsule with protoscolices. Preoperative and Postoperative albendazole was started.

Case 3

A 37 year old female complained of lower abdomen pain since 3 months with complains of heavy and irregular menstruation and fever since 7 days. No history of amenorrhea or irregular menstruation was found. On examination an abdominal lump was found along with tenderness. Patient was febrile. CEA and CA125 were within normal range. Hematological and biochemical tests were found to be unremarkable. USG shows 62x40x33 mm3 multiloculated cyst in pelvis involving left ovary. No evidence of ascites, hepatomegaly or splenomegaly was found. A provisional diagnosis of ovarian cystic disease was considered. An exploratory laparatomy was planned. On histopathological examination of excised specimen multiple small cystic lesion were found to involve left ovary with largest measuring 6x5cm2.Wet and HE stains showed hooklets and trilaminated layers of hydatid cyst confirming the diagnosis of hydatid cyst. Postoperative albendazole was started.

Case 4

A 29 year old female complained of right upper quadrant pain since 1 month, fever since one week with pruritis since 4 days. Patient was anorexic and complained of pale stools and change in color of urine since last few days. On examination patient was icteric, febrile and abdominal examination showed hepatomegaly, lump in right hypochondriac region with tenderness. And guarding .Her LFT showed increased total and direct bilirubin, ALT, AST and alkanine phosphatase. Hematological parameters were unremarkable and viral markers were negative. USG showed hepatomegaly with echogenic cystic round foci lesions with intrahepatic biliary

dilatation. A provisional diagnosis of choledocholiathiasis causing obstructive jaundice was made. Intraoperative findings showed dilated gallbladder and bile duct but stones were not found. On further evaluation daughter cyst were drained and sphincteroplasty was planned and diagnosis of hydatid cyst were confirmed histologically. Oral albendazole was given twice daily.

Case 5

A 40year old male complained of painless lesion over anterior abdominal wall on right side since 2 years. On examination swelling was firm, non tender with normal overlying skin. No history of trauma was given. Clinically lipoma was suspected. CT revealed subcutaneous cystic swelling measuring 42x29 mm2 with intramuscular extension. No bone involvement was seen. Soft tissue lesion with abscess formation was suspected. FNAC was advised and white thick fluid was aspirated. Wet preparation showed hooklets of hydatid cyst. Preoperative albendazole twice for one week was given and cystectomy was performed. Diagnosis of hydatid cyst was confirmed histologically with presence of trilaminated cyst wall and protoscolices. Postoperative albendazole was started.

Figure 1: Gross of hydatid cyst showing various whitish cystic structures

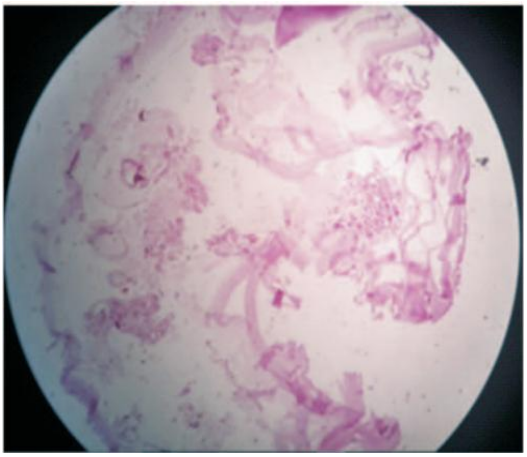

Figure 2: Low power view of Hydatid cyst showing trilaminated cyst wall and hooklets

Discussion

Hydatid disease is a parasitic tapeworm disease caused by the larval stage of Echinococcus granulosus or Echinococcus multilocularis[6]. Patients usually present with an abdominal mass with or without pain, the symptoms varying with site and size of the cyst and complication occur due to enlarging mass[6]. The growth rate of the cysts is about 1 cm per year. The size of the cysts varies between 1 and 15 cm, even though descriptions of cysts of up to 20 cm in diameter can be found. Cysts are typically univesicular, but sometimes small daughter cysts, similar to the mother cyst, can be found in their interior[5].Giant liver cysts reaching 30 cm in diameter have also been reported. Giant cysts need radical therapy because they might lead to perforation and anaphylaxis in some patients [1]. The higher rate of hepatic infection may be attributed to the fact that liver acts as a primary filter in the human body and lung is often thought to be the second filter[2]. The differential diagnosis of a solitary hepatic cystic mass is broad and includes simple (bile duct) cyst, benign adenoma, focal nodular hyperplasia, metastatic lesion, biliary cystade-noma or cystadenocarcinoma, primary hepatoma, pyogenic or amebic abscess, and echinococcal cyst. Imaging findings on CT can help to narrow the diagnosis[8]. Rupture of hydatid cyst of the liver into the biliary tree allows the entry of the daughter cysts, hydatid sand and pieces of hydatid membrane into the bile duct, thereby causing

partial or complete obstruction to the outflow of the bile and cholangitis. Most of the patients present with features of recurrent attacks of right hypochondriac pain, fever and intermittent or persistent obstructive jaundice and a palpable liver mass and it is difficult to suspect the diagnosis pre-operatively. In most of the reported cases, the diagnosis has been made only at operation, the pre-operative diagnosis being calculus jaundice, amoebic liver abscess, cholangitis, empyema of gall bladder or carcinoma of the head of the pancreas [10]. Hydatid cyst disease may lead severe and life-threatening complications[1]. Primarily this occurs in the liver and lungs but in certain cases, the embryo escapes the pulmonary circulation and enters the systemic circulation, from which it can also the female reproductive system[3]. Most of the cases of ovarian hydatidosis are diagnosed peroperatively. Owing to its multilocular cystic appearance, a hydatid cyst may not be differentiated from ovarian lesions with septal structures such as cystadenoma or cystic ovarian teratoma (with intracystic floating globules). The overall prevalence of peritoneal involvement in cases of abdominal hydatid disease is approximately 13% [4]. Primary skeletal muscle infection with E. granulosus accounts for 1%–4% of reported hydatid cases. Low prevalence of this form of disease is potentially due to the physical barriers to the hematogenous dissemination of cysts created by hepatic sinusoids and pulmonary capillaries. Moreover the higher lactic acid concentration in skeletal muscle and mechanical factors, such as contractile activity, may make encystment less likely[5]. In lung most cases of hydatid are diagnosed by a combination of history of exposure, serological testing of serum or hydatid fluid and imaging. Chest X-ray is usually the initial investigation for a patient with lung symptoms. An intact single hydatid cyst appears as a homogeneous spherical opacity with definite edges. It is often surrounded by normal lung tissue. Images of a complicated hydatid cyst vary and it may resemble a lung abscess, malignant tumor, tuberculosis, and other cystic lesions of the lung [9]. Typical radiological findings are helpful in the diagnosis of the disease. Ultrasonography, computerized tomography, and magnetic resonance imaging are highly accurate in detecting HD. These imaging techniques help to determine the cystic a vascular nature of the lesion and also daughter cysts, vesicles and internal septa [1]. Also there is no single serologic test that definitively establishes the diagnosis before imaging and surgery. Even so, immunologic studies are helpful when imaging studies are inadequate in distinguishing hydatid cysts of the liver from pyogenic abscesses or cystic neoplasms[6]. A negative test does not rule out the diagnosis of echinococcosis. False positivity of Casoni skin test was reported in infestations of tenia saginata and other helminths because of cross reactions. The specificity of Casoni skin test is low because of this high, 40% false positivity. ELISA/Western blood serology is 80–100% sensitive and 88–96% specific for liver cyst infestation, but less sensitive for lung (50–56%) or other organ involvement (25-26%)[5]. There are only two antihelmintics effective against hydatid cyst: albendazole and mebendazole. Albendazole is the drug of choice because its systemic absorption and penetration into hydatid cysts is higher than mebendazole [9]. Surgical removal hydatid cysts remains the preferred method of treatment, using either radical or conservative surgery[6]. The surgical options include lobectomy, wedge resection, pericyste-ctomy, intact endocystec- tomy, and capitonnage. When surgery is necessary, presurgical use of albendazole reduces risk of recurrence and facilitates the removal of the cyst by reducing intracystic pressure[9]. PAIR is used to kill all viable protoscolices or separate them from the pericyst within 5 to 10 minutes. Indications for PAIR(percutaneous aspiration and injection of hypertonic saline) include hydatid liver cysts that contain a considerable amount of fluid, or an infected hydatid cyst without communication with biliary trees[6].

Conclusion

Hydatid cyst have diversified locations and should be suspected in patients having cystic lesions on radiology in areas of world where echinoccocus is endemic. Also proper intervention and safegauards should be kept in mind while handling cases of hydatid cyst. As no organ is exception to hydatid cyst disease it should be kept in mind along with other differential diagnosis while treating cystic diseases to keep away this major public health problem.

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